

# Carrot

---

*Daucus carota* (Umbelliferae)

## Fast Facts:

Acres in Washington: 6,414
Percent U.S. acreage: 10%
Per Acre Value: \$2200 - \$2700
Number of Growers: 302
Value of Production in Washington: \$13 Million
Percent of U.S. Production: processing carrots: 35.6%

*Carrots for processing are the 35<sup>th</sup> most valuable commodity in the state*

## Description of crop:

Washington ranks first in the nation in production of processing carrots and fourth for fresh market carrots. Seventy-eight percent of the carrots grown in Washington are for processing. This accounts for 36 percent of U.S. production of processing carrots and 4-5 percent of the fresh carrots. Carrots for the fresh market are planted in early April to late May and harvested from July to November. This long planting period ensures a longer fresh market. Processing carrots are harvested in October or November. Carrot waste from processing is used in dog food, livestock feed and a small portion of cull carrots are used for carrot juice.

Carrots are grown commercially in both Eastern and Western Washington. In eastern Washington the counties with the greatest acreage are Benton, Franklin, Grant and Klickitat. Cowlitz, Skagit, Thurston and Whatcom are the main carrot producing counties in Western Washington. The carrot production in Western Washington has declined while the acreage in Eastern Washington has risen substantially in the past ten years. Pest and disease issues may vary due to differing climates on each side of the state.

## Key pests:

Serious insect pests include carrot aphid, six-spotted leafhopper, wireworms, seed corn maggot and, on the west side, carrot rust fly. Leafhoppers also transmit aster yellows and beet leafhopper transmitted virescens agent (BLTVA.) These are two of the most critical diseases of carrots and both are transmitted by beet leafhopper. Mites, loopers, cutworms and armyworms are occasional insect pests. Weed problems include chickweed, smartweed, pigweeds, lambsquarter, quackgrass, pasture grasses, marestail, barnyard grass and sometimes nightshades and dodder, a parasitic annual weed. If carrots are planted after potatoes, volunteer potatoes

are a significant weed. Disease problems include Alternaria, Cercospora, Pythium or cavity spot, powdery mildew, white mold, aster yellow phytoplasma. Motley dwarf is a complex of carrot mottle virus and carrot red leaf luteovirus which exhibits symptoms similar to aster yellows. A nematode complex, including Columbia root-knot, northern root-knot and root lesion nematode also are significant pests especially in eastern Washington.

### **Key pesticides:**

The carrot aphid is controlled with Admire, Thiodan or diazanon. The six spotted leafhopper is controlled with Asana, Sevin or Lannate. The carrot rust fly is controlled pyrethrin. Wireworms are controlled with Telone or Gaucho. The seed corn maggot is currently controlled with diazanon but its use is being curtailed. Vydate is also used to control seed corn maggot. Cutworms and armyworms are controlled with Javelin, Sevin or Diazinon. Weeds are controlled with Lorox, Treflan, Poast or Fusilade. Although Lorox is applied to most carrot acreage, weed control must be supplemented with multiple cultivations and hand-hoed at least once a season. Alternaria is controlled with Bravo or Rovral. Ridomil is applied at planting and again later in the season to control cavity spot. There have been some occasions of isolates becoming less susceptible to Ridomil. It is important to consider the possibility of developing resistance when planning crop rotations. Selecting crops that do not require applications of Ridomil for three years will help keep resistance from developing. Powdery mildew is difficult to control and either sulfur products, Cabrio, Gem, Quadris or Quilt can be used. Aster yellows, a phytoplasma, have no direct chemical control. Control is achieved by chemical control of leafhoppers and weeds. Cercospora leaf blight is controlled with Bravo, Echo, Gem or Cabrio. Pythium cavity spot is controlled with Ridomil Gold or Bravo. Nematodes are controlled effectively with 1, 3-dichloropropene (Telone) or metam sodium (Vapam). Telone is applied to more than 2/3 of Washington carrots.

### **Critical pest control issues:**

Growers should choose disease resistant cultivars when available. Growers consider the loss of the so-called harder chemicals to be major concern. Diazanone use will be restricted to preplant only, after 2007. Use as a preplant has limited effectiveness due to the length of time that it takes carrots to sprout. The application rate as a preplant is also much higher than that which can be used during the growing season. Pyrethroid insecticides cause mite populations to flare and so cause an additional problem for the growers. A replacement for Telone is also a critical issue. Telone is not proving to be as effective as it was previously in the control of Pythium.

### **Expert contacts:**

Todd Crosby

Mercer Canyon Ranches  
46 Sonova Road  
Prosser, WA 99350  
509 894 4773

Tim Waters  
WSU Extension, Franklin  
1016 North 4<sup>th</sup>  
Pasco, WA  
509 545 3511

**Sources:** Todd Crosby, personal communication, September 15, 2006  
Tim Waters, personal communication, September 22, 2006

**Location  
of production:**

The majority of carrot acreage is in Franklin, Klickitat and Grant counties. Other counties include: Asotin, Chelan, Clallam, Columbia, Cowlitz, Clark, Cowlitz, Grays Harbor, Island, Jefferson, Lincoln, Kitsap, Kittitas, King, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Spokane, Thurston, Wahkiakum, Whitman, Whatcom, Yakima, Adams, Benton, Ferry, Okanogan, Pend Oreille, Stevens, and Walla Walla.